

FOLDING COLLAPSIBLE STAND FOR TABLE SAW

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to a table saw and more specifically, to a folding collapsible stand for supporting a table saw.

2. Description of the Related Art

 A table saw is generally equipped with a folding collapsible stand. A folding collapsible stand for table saw is known comprising a rectangular top frame, and four
10 legs pivoted to the bottom side of the rectangular top frame in the four corners and arranged in two crossed pairs. When in use, the legs are turned relative to the frame to a posture that can support the table saw on the floor. When not in use, the legs are turned upwards and closely received to the bottom side of the rectangular top frame. When collapsed the legs each have the bottom end protruded over the periphery of the
15 rectangular top frame at a distance. Because the legs protrude over the periphery of the rectangular top frame at a distance, the collapsed folding collapsible stand still occupies much storage space. .

SUMMARY OF THE INVENTION

 It is primary objective of the present invention to provide a folding
20 collapsible stand for table saw, which requires less storage space when collapsed.

 It is another objective of the present invention to provide a folding collapsible stand for table saw, which has the legs made foldable so that the storage space can be minimized when collapsed.

 To achieve these objectives of the present invention, the folding collapsible
25 stand for supporting a table saw comprises a rectangular top frame, and a plurality of



folding collapsible legs respectively pivoted to the rectangular top frame and turnable between an extended position for supporting the table saw and a received position received to the bottom side of the table saw. Each folding collapsible leg comprises a top tube, a bottom tube, a connector, and a pivot. The top tube has a bottom end, a pivot hole transversely disposed near the bottom end, and a notch disposed at an inner side and longitudinally extended to the bottom end. The bottom tube comprises a top end, a longitudinal slot and a locating hole disposed in an upper part thereof. The connector comprises a hollow rectangular base fitted into the top end of the bottom tube, a through hole extended through two opposite sidewalls of the hollow rectangular base, two bottom extension strips respectively downwardly extended from the hollow rectangular base at two sides, two semispherical knobs respectively formed on the bottom extension strips at an outer side remote from the hollow rectangular base, and a top stop device formed on the top side of the hollow rectangular base. The pivot is inserted through the pivot hole of the top tube, the longitudinal slot of the bottom tube and the through hole of the hollow rectangular base of the connector to pivotally secure the bottom tube to the connector and the top tube such that when the corresponding folding collapsible leg is turned to the extended position, the semispherical knobs of the connector are respectively engaged into the locating hole of the bottom tube and the pivot is stopped at the bottom end of the longitudinal slot. When pressed the semispherical knobs inwards, the semispherical knobs are respectively disengaged from the locating hole of the bottom tube for enabling the bottom tube to be pulled downwards relative to the top tube to move the pivot to the top end of the longitudinal slot and then turned about the pivot toward the notch to the received position to force the stop device against the inside wall of the top tube.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a folding collapsible stand for table saw according to the present invention.

FIG. 2 is an exploded view of the folding collapsible stand for table saw
5 according to the present invention.

FIG. 3 is a perspective view of the connector of one first leg of the folding collapsible stand for table saw according to the present invention.

FIG. 4 is a perspective view of the connector of one second leg of the folding collapsible stand for table saw according to the present invention.

10 FIG. 5 is a front view of the present invention, showing the locking device fastened to the second crossbar.

FIG. 6 is a sectional view in an enlarged scale of a part of the present invention showing the pivot of one first leg stopped at the bottom edge of the corresponding longitudinal slot.

15 FIG. 7 is a sectional view in an enlarged scale of a part of the present invention showing the pivot of one second leg stopped at the bottom edge of the corresponding longitudinal slot.

FIG. 8 is similar to FIG. 5 but showing the locking device disengaged from the second crossbar.

20 FIG. 9 is similar to FIG. 7 but showing the pivot stopped at the top edge of the corresponding longitudinal slot.

FIG. 10 is a sectional view in an enlarged scale of a part of one second leg of the folding collapsible stand for table saw according to the present invention, showing the bottom tube turned to the collapsed position.

25 FIG. 11 is a perspective bottom view of the present invention, showing the

received status of the second legs.

FIG. 12 is similar to FIG. 6 but showing the pivot stopped at the top edge of the corresponding longitudinal slot.

FIG. 13 is a sectional view in an enlarged scale of a part of one first leg of the folding collapsible stand for stable saw according to the present invention, showing the bottom tube turned to the collapsed position.

FIG. 14 is a perspective bottom view of the present invention showing the received status of the folding collapsible stand for table saw.

FIG. 15 is a perspective top view of FIG. 14.

10 DETAILED DESCRIPTION OF THE INVENTION

As shown in FIGS. 1 and 2, a folding collapsible stand 1 is shown comprising a rectangular top frame 10, two first legs 20 fastened pivotally with the front side of the rectangular top frame 10, and two second legs 50 fastened pivotally with the rear side of the rectangular top frame 10.

The rectangular top frame 10 is adapted to support a table saw 90, comprising a front bar 11, a rear bar 12, a left-side bar 13, and a right-side bar 14. The left-side bar 13 and the right-side bar 14 are connected in parallel between the ends of the front bar 11 and the rear bar 12. The front bar 11 and the rear bar 12 each have a substantially inverted U-shaped clamping plate 15 downwardly extended from the bottom side adjacent to the right-side bar 14.

The first legs 20 each comprise a top tube 21, a connector 23, a bottom tube 24, and a pivot 25. The top tube 21 and the bottom tube 24 are rectangular tubes. The top tube 21 has one end, namely, the top end pivoted to the front bar 11 of the rectangular top frame 10 by a screw bolt 26 in such a manner that the top tube 21 of one of the first legs 20 is disposed at the inner side of the left end of the front bar 11

and the top tube 21 of the other of the first legs 20 is disposed at the outer side of the right end of the front bar 11. The top tube 21 which is disposed at the inner side of the left end of the front bar 11 has a longitudinal guide slot 27. The top tube 21 which is disposed at the outer side of the right end of the front bar 11 has a transversely
5 extended through hole 28. The bottom end of the top tube 21 of each first leg 20 is respectively mounted with a coupling tube 22. The coupling tube 22 is a rectangular tube 22 having the top end fixedly sleeved onto the bottom end of the respective top tube 21 and the bottom end provided with a transversely extended pivot hole 30 and a longitudinally extended bottom notch 31 (see FIG. 6).

10 The connector 23 of each first leg 20 is molded from plastics. As shown in FIG. 3, the connector 23 comprises a hollow rectangular base 34, a through hole 36 extended through two opposite sidewalls of the hollow rectangular base 34, two bottom extension strips 40 respectively downwardly extended from the other two opposite sidewalls of the hollow rectangular base 34, two semispherical knobs 41
15 respectively formed on the free (bottom) ends of the extension strips 40 at an outer side, and a top stop device 33 formed on the top side of the hollow rectangular base 34. The top stop device 33 comprises two curved stop plates 37 respectively bilaterally extended from two opposite sidewalls of the hollow rectangular base 34 at the top corresponding to the bottom extension strips 40 and curved toward each other. Each
20 curved stop plate 37 has a bottom sloping portion 38 obliquely extended from the hollow rectangular base 34, and a top bearing portion 39 horizontally extended from the top side of the bottom sloping portion 38.

The bottom tube 24 of each first leg 20 comprises a longitudinal slot 42 cut through the left and right tube walls near the top, a circular locating hole 43
25 transversely extended through the front and rear tube walls below the elevation of the

longitudinal slot **42**, a foot member **44** fastened to the bottom end. The connector **23** of each first leg **20** is fastened to the inside of the top end of the respective bottom tube **24**.

The pivot **25** of each first leg **20** is a screw bolt inserted through the pivot hole **30** of the corresponding coupling tube **22**, the longitudinal slot **42** of the corresponding bottom tube **24** and the through hole **36** of the corresponding connector **23** to join the corresponding top tube **21** and the corresponding bottom tube **24**, for enabling the corresponding bottom tube **24** to be pivoted relative to the corresponding top tube **21**.

The second legs **50** each comprise a top tube **51**, a connector **53**, a bottom tube **54**, and a pivot **55**. The top tube **51** and the bottom tube **54** are rectangular tubes. The top tube **51** has one end, namely, the top end pivoted to the rear bar **12** of the rectangular top frame **10** in such a manner that the top tube **51** of one of the second legs **50** is disposed at the inner side of the left end of the rear bar **12** and the top tube **51** of the other of the second legs **50** is disposed at the outer side of the right end of the rear bar **12**. The top tube **51** which is disposed at the inner side of the left end of the rear bar **12** has a longitudinal guide slot **57**. The top tube **51** which is disposed at the outer side of the right end of the rear bar **12** has a transversely extended through hole **58**. The bottom end of the top tube **51** of each second leg **50** is respectively mounted with a coupling tube **52**. The coupling tube **52** is a rectangular tube having the top end fixedly sleeved onto the bottom end of the respective top tube **51** and the bottom end provided with a transversely extended pivot hole **59** and a longitudinally extended bottom notch **60** (see FIG. 7).

The connector **53** of each second leg **50** is molded from plastics. As shown in FIG. 4, the connector **53** comprises a hollow rectangular base **62**, a through hole **64**

extended through two opposite sidewalls of the hollow rectangular base 62, two bottom extension strips 69 respectively downwardly extended from the other two opposite sidewalls of the hollow rectangular base 62, two semispherical knobs 70 respectively formed on the free (bottom) ends of the extension strips 69 at an outer side, 5 and a top stop device 61 formed on the top side of the hollow rectangular base 62. The top stop device 61 comprises a curved stop plate 65 upwardly extended from the hollow rectangular base 62 at the top. The curved stop plate 65 has a bottom sloping portion 66 obliquely extended from the hollow rectangular base 62, and a top horizontal endpiece 68, and a curved bearing portion 67 connected between the bottom 10 sloping portion 66 and the top horizontal endpiece 68.

The bottom tube 54 of each second leg 50 has a top straight section 74 and a bottom oblique section 73 extended from the bottom end of the top straight section 74 at an angle. The top straight section 74 has a longitudinal slot 71 cut through the left and right tube walls near the top, and a circular locating hole 72 transversely extended 15 through the front and rear tube walls near the bottom. The bottom oblique section 73 has the bottom end mounted with a foot member 83. The connector 53 of each second leg 50 is fastened to the inside of the top end of the top straight section 74 of the corresponding bottom tube 54.

The pivot 55 of each second leg 50 is a screw bolt inserted through the pivot 20 hole 59 of the corresponding coupling tube 52, the longitudinal slot 71 of the corresponding bottom tube 54 and the through hole 64 of the corresponding connector 53 to join the corresponding top tube 51 and the corresponding bottom tube 54, for enabling the corresponding bottom tube 54 to be pivoted relative to the corresponding top tube 51.

25 Further, a first crossbar 77 is connected between one first leg 20 and one

second leg 50 (the first leg and the second leg at the inner side of the rectangular top frame 10), and a second crossbar 78 is connected between the other first leg 20 and the other second leg 50 (the first leg and the second leg at the outer side of the rectangular top frame 10). A locking device 80 is provided at the first crossbar 77 on the middle.

5 The locking device 80 comprises a handle 82 pivoted to the first crossbar 77, and a hook 81 pivoted to the handle 82. Two pivot rods 79 are respectively fastened to the transversely extended through hole 28 and longitudinal guide slot 27 of the first legs 20 and the transversely extended through hole 58 and longitudinal guide slot 57 of the second legs 50, keeping the two first legs 20 and the two second legs 50 arranged in a

10 crossed manner.

After explanation of the component parts of the folding collapsible stand for table saw and their relative positioning, the folding operation of the folding collapsible stand for table saw will be described hereinafter.

FIG. 1 shows the extended status of the folding collapsible stand for table

15 saw. At this time, the knobs 41 of the connectors 23 of the first legs 20 are respectively engaged in the circular locating holes 43 of the bottom tubes 24 of the first legs 20 and the pivots 25 of the first legs 20 are respectively stopped at the bottom edges 46 of the longitudinal slots 42 of the bottom tubes 24 of the first legs 20 (see FIG. 6); the knobs 70 of the connectors 53 of the second legs 50 are respectively engaged in the circular

20 locating holes 72 of the bottom tubes 54 of the second legs 50 and the pivots 55 of the second legs 50 are respectively stopped at the bottom edges 76 of the longitudinal slots 71 of the bottom tubes 54 of the second legs 50 (see FIG. 7); and the hook 81 is hooked on the second crossbar 78 (see FIG. 5). Therefore, the legs 20 and 50 are held in the extended position and supported on the floor firmly and stably.

25 Referring to FIG. 8, when wishing to collapse the folding collapsible stand 1,

lift the handle **82** to disengage the hook **81** from the second crossbar **78**, and then turn the first legs **20** and the second legs **50** toward the bottom side of the rectangular top frame **10** to force the top tubes **21** and **51** of the inner first leg **20** and inner second leg **50** into engagement with the two inverted U-shaped clamping plates **15**, and then
5 collapse the second legs **50** (see FIGS. 9-11), and finally collapse the first legs **20** (see FIGS. 12-15). When collapsing the second legs **50**, press the knobs **70** inwardly away from the locating holes **72** (see FIG. 9), and then pull the respective bottom tubes **54** out of the respective top tubes **51** to the extent that the pivots **55** are respectively stopped at the respective top edges **75** of the respective longitudinal slots **71**, and then
10 turn the respective bottom tubes **54** about the respective pivots **55** toward the corresponding bottom notches **60**, as shown in FIGS. 10 and 11, to force the endpieces **68** of the respective top stop devices **61** over the inside walls of the corresponding coupling tubes **52** till the curved bearing portions **67** of the stop devices **61** are respectively stopped against the inside walls of the corresponding coupling tubes **52**.

15 When collapsing the first legs **20**, as shown in FIGS. 12 and 13, press the knobs **41** inwardly away from the corresponding locating holes **43**, and then pull the respective bottom tubes **24** out of the respective top tubes **21** to the extent that the pivots **25** are respectively stopped at the respective top edges **45** of the respective longitudinal slots **42**, and then turn the respective bottom tubes **24** about the respective
20 pivots **25** toward the corresponding bottom notches **31**, as shown in FIGS. 14 and 15, to force the top bearing portions **39** of the curved stop plates **37** against the inside walls of the corresponding coupling tubes **22**. At this time, the top tubes **21** and the bottom tubes **24** are arranged at right angles, and the folding collapsible stand **1** is received in the collapsed status.

25 As indicated above, the folding collapsible stand **1** can be received in the

collapsed status to reduce space occupation when not in use. When in use, the folding collapsible stand **1** supports the table saw **90** on the floor at the suitable elevation for cutting the workpiece.